

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
26 September 2002 (26.09.2002)

PCT

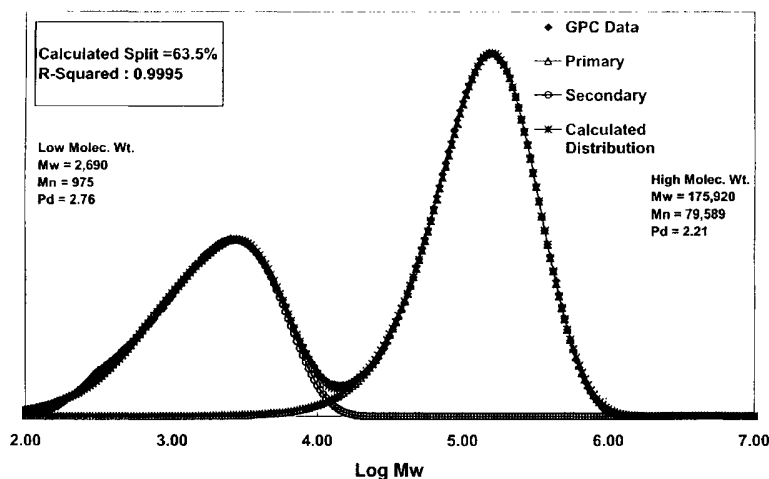
(10) International Publication Number
WO 02/074817 A3

- (51) International Patent Classification⁷: **C08F 10/00**, 4/646
- (74) Agent: **BAI, J., Benjamin**; Jenkins & Gilchrist, 1100 Louisiana, Ste. 1800, Houston, TX 77002 (US).
- (21) International Application Number: PCT/US02/08121
- (22) International Filing Date: 15 March 2002 (15.03.2002)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/276,719 16 March 2001 (16.03.2001) US
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- (75) Inventors/Applicants (for US only): **STEVENS, James, C.** [US/US]; 2026 Pecan Trail Dr., Richmond, TX 77469 (US). **VANDERLENDE, Daniel, D.** [US/US]; 5003 Kingsland Court, Sugar Land, TX 77479 (US).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report

[Continued on next page]

(54) Title: METHOD OF MAKING INTERPOLYMERS AND PRODUCTS MADE THEREFROM

Example 27 Deconvolution



(57) Abstract: A polymerization process comprises contacting one or more olefinic comonomers in the presence of at least a high molecular weight catalyst and at least a low molecular weight catalyst in a single reactor; and effectuating the polymerization of the olefinic comonomers in the reactor to obtain an olefin polymer. Preferably, both catalysts have the ability to incorporate a substantially similar amount of comonomers in the olefin polymer. The polymers produced by the process may have a relatively higher level of long chain branching while maintaining a relatively narrow molecular weight distribution, i.e., MWD less than about 6. These interpolymers may exhibit processability similar to or better than LDPE but have physical properties similar to metallocene catalyzed polymers.

WO 02/074817 A3



(88) Date of publication of the international search report:
15 May 2003

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 02/08121

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 C08F10/00 C08F4/646		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC 7 C08F		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, PAJ, WPI Data		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 97 48735 A (EXXON CHEMICAL PATENTS INC) 24 December 1997 (1997-12-24)	1-29, 36-45, 54-70
Y	abstract; claims 1-34 page 13, line 21-26, 34-36 page 15, line 16-27 page 16, line 21-26 page 17, line 1-12 page 21, line 6-15, 26-30 page 26, line 24-40 page 27, line 1-3 page 7, line 18-27	30-35
P, Y	WO 01 42315 A (KRUPER WILLIAM J JR ; ROOF GORDON R (US); DOW CHEMICAL CO (US); KLO) 14 June 2001 (2001-06-14) the whole document	30-35

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<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> Patent family members are listed in annex.		
° Special categories of cited documents :		
A document defining the general state of the art which is not considered to be of particular relevance *E* earlier document but published on or after the international filing date *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) *O* document referring to an oral disclosure, use, exhibition or other means *P* document published prior to the international filing date but later than the priority date claimed		*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. *&* document member of the same patent family
Date of the actual completion of the international search 14 January 2003		Date of mailing of the international search report 24. 01. 2003
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Authorized officer Bergmans, K

INTERNATIONAL SEARCH REPORT

Inte il Application No

PCT/US 02/08121

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>WO 01 14434 A (DUPONT DOW ELASTOMERS LLC ;MANGOLD DEBRA J (US); PARIKH DEEPAK R () 1 March 2001 (2001-03-01)</p> <p>abstract; claims 1-32 page 1, line 5-15 page 2, line 9-27 page 4, line 26-31 page 7, line 9-15,25-30 page 8, line 5 page 10, line 1-10 page 12, line 1 page 28, line 9-35 page 29, line 10-18 page 30, line 10,22-28 page 32, line 7-12</p>	<p>1,2, 4-12, 20-29, 36-47, 54-70</p>
X	<p>WO 00 50466 A (BOREALIS TECH OY ;COCKBAIN JULIAN (GB); ANDERSEN ARILD GEIR (NO);) 31 August 2000 (2000-08-31)</p> <p>abstract; claims 1-23 page 3, line 20-37 page 4, line 13-23 page 6, line 14,15 page 8, line 10-37 page 9, line 1-37 page 10, line 1-25 page 16, line 16,33 page 27, line 24-35 page 28, line 1-10</p>	<p>1,22-25, 27-29, 36-46, 54-70</p>
A	<p>WO 00 49059 A (DOW CHEMICAL CO) 24 August 2000 (2000-08-24) abstract; claims 1-10 page 23, line 6-24</p>	<p>1-47, 54-70</p>
A	<p>WO 96 07478 A (MOBIL OIL CORP) 14 March 1996 (1996-03-14) abstract; claims 1-22 page 1, line 4-33 page 2, line 1 page 3, line 31-35 page 13, line 18-36 page 15, line 12-16 page 16, line 30-35</p>	<p>1-47, 54-70</p>
A	<p>US 5 556 928 A (DEVORE DAVID D ET AL) 17 September 1996 (1996-09-17) abstract; claims 1-19 column 25; example 17</p>	<p>32,35</p>
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INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	WO 01 92403 A (VOLKENBURGH WILLIAM R VAN ;CHUM PAK WING S (US); DOW CHEMICAL CO () 6 December 2001 (2001-12-06) abstract; claims 1-68 page 7, line 28 page 9, line 16 page 12, line 12 page 15, line 18 page 22, line 21 -page 23 ----	48-53
X	EP 0 773 257 A (UNION CARBIDE CHEM PLASTIC) 14 May 1997 (1997-05-14) abstract; claims 1-7 page 6, line 15 page 7, line 10 page 14; table 4 page 18; table 4 ----	48-53
X	EP 0 321 964 A (UNION CARBIDE CORP) 28 June 1989 (1989-06-28) abstract; claims 1-7 page 2, line 2-21,26-35 page 6; table 1 page 7; table 1 -----	48-53

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 02/08121

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-47,54-70

Claims 1-47,54-70 : a process of making an olefin polymer and an olefin polymer obtained by this process. The polymer is characterised by the average molecular weight M_{wh}/M_{wl} .

2. Claims: 48-53

Claims 48-53 : an olefin polymer characterised by a melt strength and a film thereof which is characterised with a shrink of at least 20%.

INTERNATIONAL SEARCH REPORT

In International Application No

PCT/US 02/08121

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